

TeSys[®] T LTM R Profibus-DP[®] Motor Management Controller Quick Start Guide

08/2008

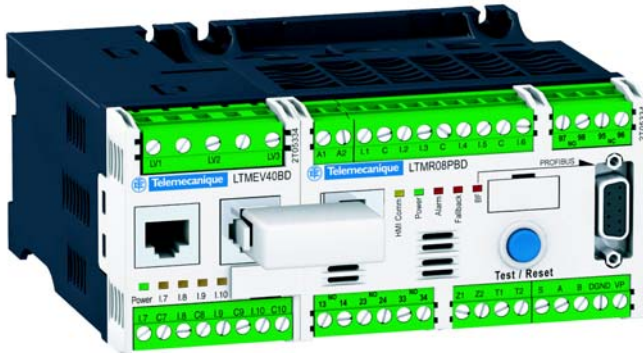
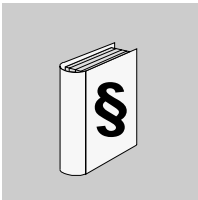


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Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury, or equipment damage.

CAUTION

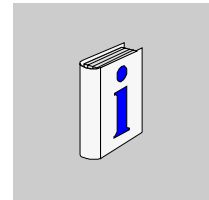
CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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About the Book



At a Glance

Document Scope The Quick Start Guide uses an application example to describe the different steps to quickly install, configure and use TeSys[®] T.

This document is not intended to replace the following documents:

- TeSys[®] T LTM R Profibus-DP[®] Motor Management Controller User's Manual
- TeSys[®] T LTM R Instruction Sheet
- TeSys[®] T LTM E Instruction Sheet

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Related Documents

Title of Documentation	Reference Number
TeSys T LTM R Profibus-DP Motor Management Controller - User's Manual	1639502
TeSys T LTM R•• Instruction Sheet	1639508
TeSys T LTM E•• Instruction Sheet	1639509
TeSys T LTM CU Control Operator Unit User's Manual	1639581
TeSys T LTM CU Instruction Sheet	1639582

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Quick Start Guide

Introduction

The Quick Start Guide uses an application example to illustrate each step in the process of installing, configuring and using TeSys® T.

The application example uses the LTM R controller to protect and control a motor and its driven load, in this case, a pump.

This application example is intended to:

- show you how to configure the LTM R controller in a few steps
- provide an example you can modify to develop your own configuration
- serve as a starting point for the development of more complex configurations, incorporating such additional features as HMI or network control

Functions Performed

When the LTM R controller has been configured in order to protect and control the motor and pump, it will perform the following functions:

- thermal overload protection
 - motor temperature sensor protection
 - voltage protection / undervoltage
 - external ground fault protection
 - initial system configuration during commissioning using PC and PowerSuite software
-

**Operating
Conditions**

The operating conditions used in the application example are:

- motor power: 4 kW
 - line-to-line voltage: 400 Vac
 - current: 9 A
 - control circuit voltage: 230 Vac
 - 3-wire control
 - motor trip class 10
 - start button
 - stop button
 - reset button on enclosure door
 - fault light
 - warning light
 - full voltage, non-reversing starter (direct over the line starter)
 - 24 Vdc power supply in the motor control center or control station for future use with expansion module inputs
-

**Network
Conditions**

The network conditions for the example are:

- protocol: Profibus-DP
- address: 4
- baud rate: 3Mb/s

The LTM R controller is configured via PowerSuite - not via the network (Configuration via Network port is disabled).

The network software setup described in this document is based on:

- Sycon network configuration software
 - Unity programming software
 - Premium PLC platform
-

**Components
Used**

The application example uses the following components:

Item	Component description	Reference number
1	LTM R 100-240 Vac Profibus-DP Motor Management Controller (1.35...27 A FLC)	LTMR27PFM
2	LTM E 24 Vdc Expansion Module	LTMEV40BD
3	LTM R to LTM E RJ45 connection cable	LTMCC004
4	PowerSuite cable kit	VW3A8106
5	PowerSuite software on CD-ROM, version ≥ 2.5	PowerSuite
6	External ground fault CT	TA30
7	External PTC binary motor temperature sensor	User supplied

**What's in this
Chapter?**

This chapter contains the following topics:

Topic	Page
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Network Communication on Profibus-DP	33

Presentation of the TeSys® T Motor Management System

System Overview

The TeSys® T Motor Management System offers protection, control, and monitoring capabilities for single-phase and 3-phase AC induction motors.

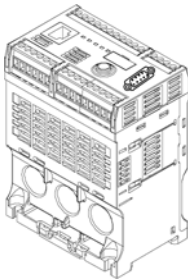
The system offers diagnostic and statistics functions, as well as configurable warnings and faults, to enable better prediction of component maintenance. It provides data to continuously improve the entire system.

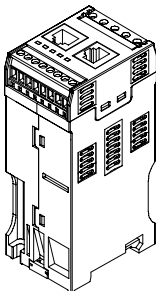
The two main hardware components of the system are:


- the LTM R controller, and
- the LTM E expansion module.

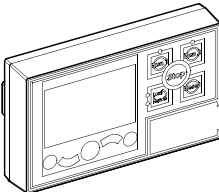
System Presentation

The following tables describe the main components of the TeSys® T Motor Management System.

LTM R controller	Functional description	Reference number
	<ul style="list-style-type: none"> • current sensing 0.4...100 A 	LTMR08PBD (24 Vdc, 0.4...8 A FLC)
	<ul style="list-style-type: none"> • single-phase or 3-phase current inputs 	LTMR27PBD (24 Vdc, 1.35...27 A FLC)
	<ul style="list-style-type: none"> • 6 discrete logic inputs 	LTMR100PBD (24 Vdc, 5...100 A FLC)
	<ul style="list-style-type: none"> • 4 relay outputs: 3 SPST, 1 DPST 	LTMR08PFM (100...240 Vac, 0.4...8 A FLC)
	<ul style="list-style-type: none"> • connections for a ground current sensor 	LTMR27PFM (100...240 Vac, 1.35...27 A FLC)
	<ul style="list-style-type: none"> • connection for a motor temperature sensor 	LTMR100PFM (100...240 Vac, 5...100 A FLC)
	<ul style="list-style-type: none"> • connection for network 	
	<ul style="list-style-type: none"> • connection for HMI device or expansion module • current protection, metering and monitoring functions • motor control functions • power indicator • fault and warning LED indicators • network communication and alarm indicators • HMI communication LED indicator • test and reset function 	

LTM E expansion module	Functional description	Reference number
	<ul style="list-style-type: none"> ● voltage sensing 110...690 Vac ● 3-phase voltage inputs ● 4 additional discrete logic inputs ● additional voltage protection, metering and monitoring functions ● power LED indicator ● logic input status LED indicators <p>Additional components required for an optional expansion module:</p> <ul style="list-style-type: none"> ● LTM R controller to LTM E connection cable 	LTMEV40BD (24 Vdc)
		LTMEV40FM (100...240 Vac)

PowerSuite™ software	Functional description	Reference number
	<ul style="list-style-type: none"> ● commission the system through menu entries ● configure the system through menu entries ● display warnings and faults <p>Additional components required for PowerSuite™ software:</p> <ul style="list-style-type: none"> ● a PC ● separate power source ● LTM R/LTM E to PC communication cable 	PowerSuite ≥ v 2.5
		VW3A8106 (PC communications cable)

LTM CU Control Operator Unit	Functional description	Reference number
	<ul style="list-style-type: none"> ● commission the system through menu entries ● configure the system through menu entries ● display warnings and faults <p>Additional components required for an optional HMI device:</p> <ul style="list-style-type: none"> ● LTM R/LTM E to HMI communication cable ● HMI to PC communication cable 	LTM CU
		VW3A1104R.0 (HMI communication cable)
		VW3A8106 (PC communication cable)

LTM R and LTM E Description

The following diagrams show the features of the LTM R controller and expansion module:

LTM R Controller	LTM E Expansion Module
<p>1 test/reset button</p> <p>2 HMI port with RJ45 connector connecting the LTM R controller to an HMI, PC, or expansion module</p> <p>3 network port with 9-pin sub-D connector connecting the LTM R controller to a Profibus PLC</p> <p>4 status-indicating LEDs</p> <p>5 plug-in terminal: control power, and internally powered logic inputs and commons</p> <p>6 plug-in terminal: double pole/single throw (DPST) output relay</p> <p>7 plug-in terminal output relay</p> <p>8 plug-in terminal: ground fault input and temperature sensor input</p> <p>9 plug-in terminal: PLC network</p>	<p>1 port with RJ45 connector to HMI or PC</p> <p>2 port with RJ45 connector to LTM R controller</p> <p>3 status-indicating LEDs</p> <p>4 plug-in terminal: voltage inputs</p> <p>5 plug-in terminal: logic inputs and common</p>

Installation

Overview

The following procedure describes how to install and physically configure the TeSys® T system, according to the operating conditions used in the application example. The same procedure is used for other configurations.

The full installation procedure is shown on the Instruction sheets provided with the LTM R controller and the LTM E expansion module. It is also described in detail in the Installation chapter of the User's Manual.

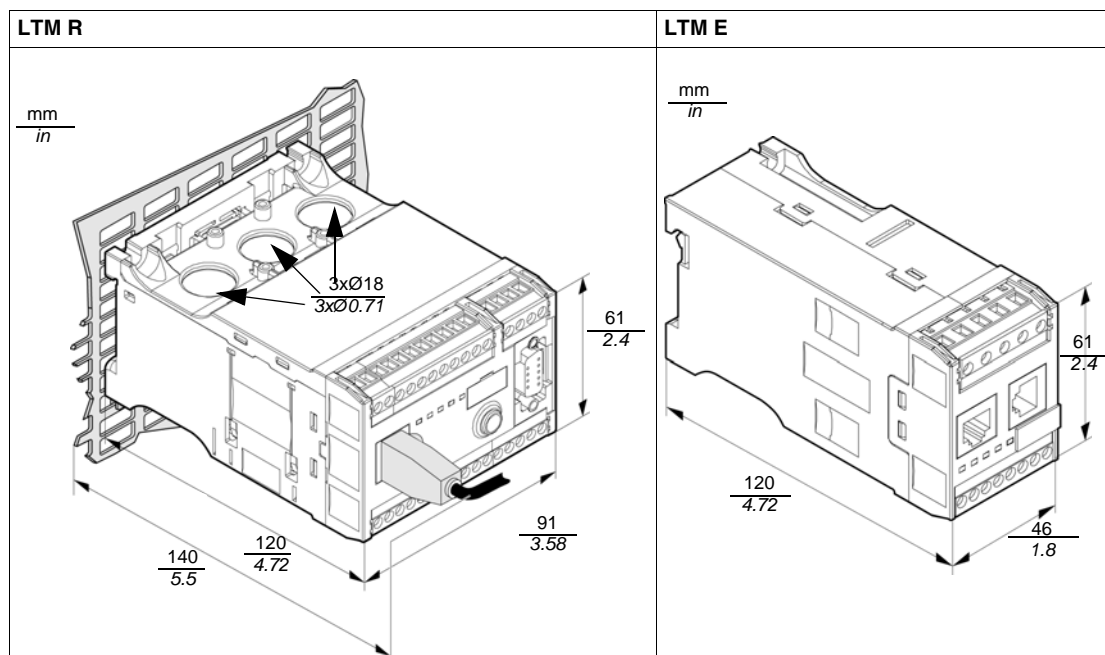
⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Turn off all power supplying this equipment before working on it.
Apply appropriate personal protective equipment (PPE) and follow safe electrical work practises.

Failure to follow this instruction will result in death or serious injury.

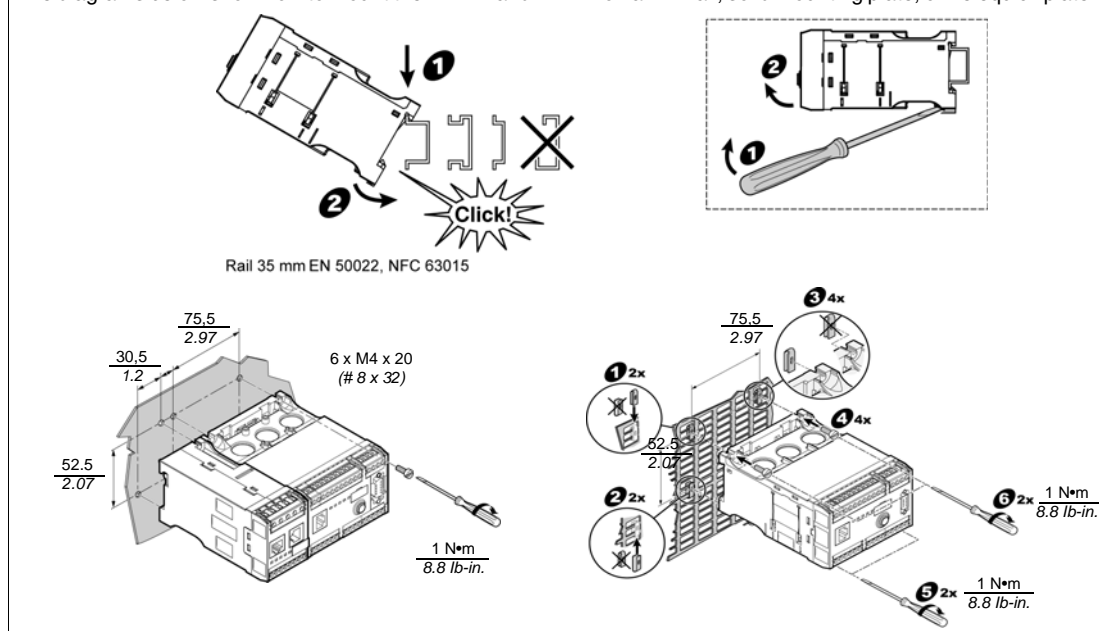
The following diagrams show the physical dimensions of the LTM R controller and the LTM E expansion module:



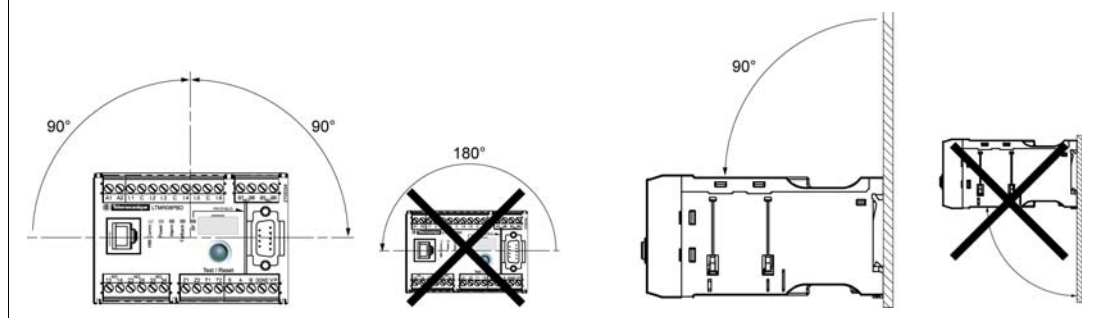
Mount LTM R and LTM E

Mount the LTM R controller and the LTM E expansion module, respecting clearance zones and operating position.

The diagrams below show how to mount the LTM R and LTM E on a DIN rail, solid mounting plate, or Telequick plate:



This diagram shows the operating positions possible:

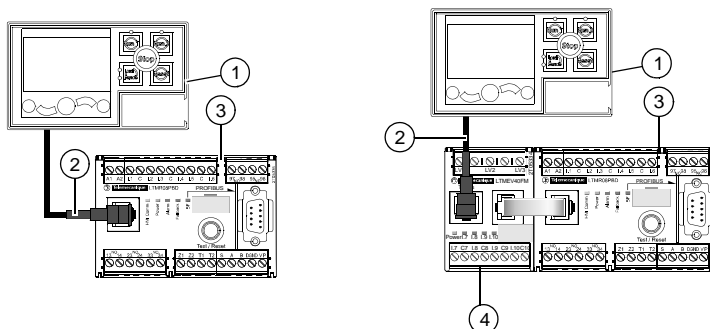


Connect LTM R to LTM E

Connect the LTM R controller and the LTM E expansion module using the RJ45 cable.

Connect to a TeSys® T LTM CU HMI Device (Optional)

The diagrams below show the TeSys® T LTM CU HMI device connected to the LTM R controller, with and without the LTM E expansion module:



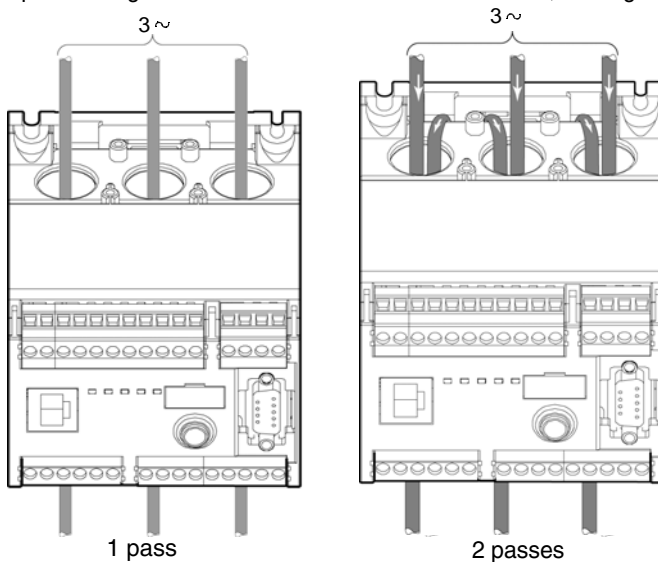
- 1 LTM CU Control Operator Unit
- 2 RJ45 cable (VW3 A1 104R30, in this example)
- 3 LTM R controller
- 4 LTM E expansion module

Wire Current Transformers

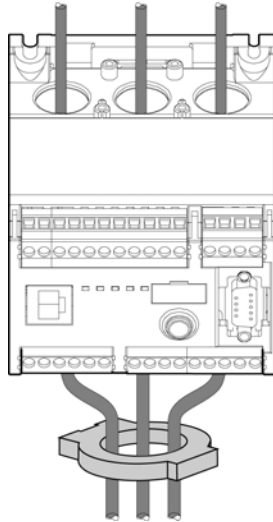
Wire the current transformers according to the operating conditions:

- Product range → 1.35 – 27 A
- Nominal motor current → 9 A

1 pass through the CT windows is sufficient in this case, although 2 passes are possible:



Wire Ground CT Wire the ground fault current transformer:

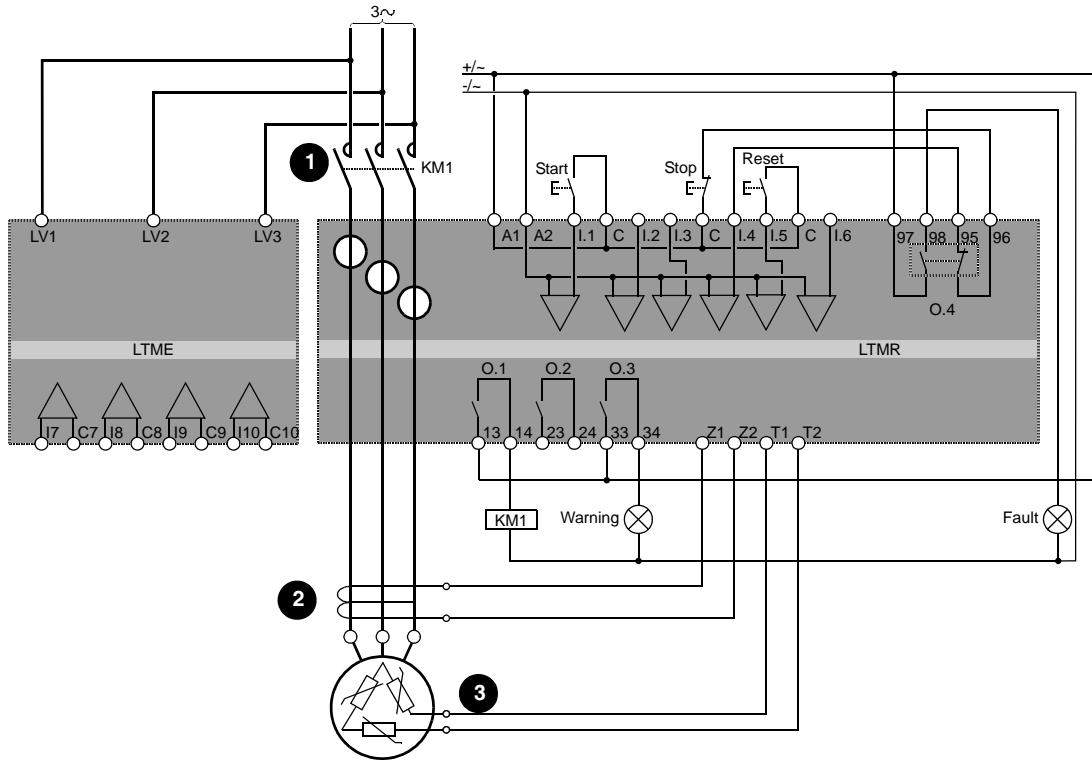


-
- Wire LTM R**
- Wire the power supply and the I/O.
 - Wire the temperature sensors.

Wire LTM E Wire the voltage transformers and the I/O on the LTM E expansion module.

LTM R Controller Wiring

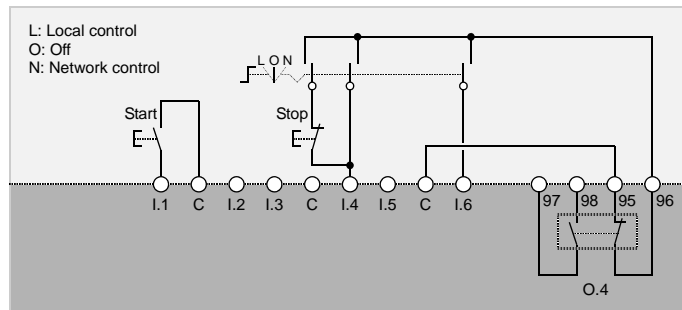
The following wiring diagram illustrates the main power circuit of the application example:



- 1 contactor
- 2 ground fault current transformer
- 3 PTC binary thermistor

**Control
Adaptation with
Network Control**

The diagram below illustrates 3-wire (impulse) local control with network control selectable. This is the operating mode used with the application example, as defined in the example's operating conditions:



Configuration

Overview

After the wiring connections are made, the next step is to configure parameters using PowerSuite™ software (see the PowerSuite chapter of the User's Manual).

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

The application of this product requires expertise in the design and programming of control systems. Only persons with such expertise should be allowed to program and apply this product.

Follow all local and national safety codes and standards.

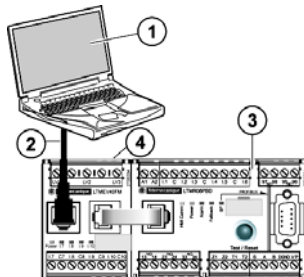
Failure to follow this instruction can result in death, serious injury, or equipment damage.

Install Software

Step	Description
1	Place the installation disk into your PC's CD/DVD drive.
2	Navigate to and click on the setup.exe file. The setup wizard begins.
3	Follow the instructions in the setup wizard.

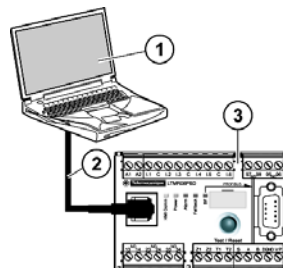
Connect to PowerSuite™ Software

In the application example:



- 1 PC running PowerSuite™ software
- 2 Power cable VW3 A8 106
- 3 LTM R controller
- 4 LTM E expansion module

If you are not using the expansion module, the HMI connects directly to the controller:



- 1 PC running PowerSuite™ software
- 2 Power cable VW3 A8 106
- 3 LTM R controller

Set Parameters

Step	Description
1	Start up the PowerSuite software.
2	In the Load Configuration screen, select and open a configuration file with factory default settings.
3	Open the Device Information branch of the tree control and set the Operating parameter settings.
4	Open the Settings branch of the tree control.
5	Locate and set the Operating parameter settings in the Motor and Control sub-branch.
6	Repeat step 5 for all other setting item sub-branches.
7	Save a copy of the completed configuration settings to a new configuration file.

List of Parameter Settings Parameter settings for the application example:

Device Information branch	Sub-branch	Parameter	Setting
Device information		Current range	1.35-27 A
		Network	Profibus-DP
		Control voltage	100-240 V AC

Settings branch	Sub-branch	Parameter	Setting
Motor and Control Settings	Motor operating mode	Nominal voltage	400 V
		Nominal power	4 kW
		Operating mode	3 wire independent
		Contactor rating	9 A
		Phase	3 phase
	Motor temperature sensor	Sensor type	PTC binary
		Fault enable	Enable
		Fault level	According to motor
		Warning level	According to motor
	Load CT	Load CT ratio	Internal
		Load CT passes	1 ⁽¹⁾
	Ground CT	Ground CT ratio	1000:1
	Control mode	Local control	Terminal trip

Settings branch	Sub-branch	Parameter	Setting
Thermal Settings	Thermal overload	Trip type	Inverse thermal
		Trip class	10
		FLC1 ⁽¹⁾	50% ⁽¹⁾ (equivalent to 9 A)
		Fault enable	Enable
		Warning enable	Enable
Current Settings	Ground Current Mode	Fault enable	Enable
		Fault level	1 A
		Fault timeout	0.5 s
		Warning enable	Enable
		Warning level	200 mA
Voltage Settings	Undervoltage	Fault enable	Enable
		Fault level	85 %
		Fault timeout	3 s
		Warning enable	Enable
		Warning level	90 %

⁽¹⁾ see FLC (Full Load Current) Settings, p. 24.

Transfer the Configuration File

Step	Description
1	Open the configuration file to be transferred. <ul style="list-style-type: none"> Be sure the file is in the Main window
2	Connect your PC to the LTM R controller. <ul style="list-style-type: none"> Check the task bar to see whether your PC is connected to the LTM R controller.
3	Transfer the configuration file: <ul style="list-style-type: none"> Select PC to Device, in either the Link → File Transfer sub-menu or the icon bar. In the Upload Configuration dialog, click Continue. A progress bar briefly appears. To confirm the success of the transfer, check the results in the Output window, which opens automatically at the bottom of the Main window. <p>Result: The product is now ready to use.</p>

FLC (Full Load Current) Settings

FLC Basics

Note: Before setting the FLC, you must first set the Contactor rating and Load CT ratio.

Load CT ratio = Load CT primary / (Load CT secondary * Passes)

Current sensor max = Current range max * Load CT ratio

Current range max is determined by the LTM R controller commercial reference. It is stored in units of 0.1 A and has one of the following values: 8.0, 27.0, or 100.0 A.

Contactor rating is stored in units of 0.1 A and is set by the user between 1.0 and 1000.0 A.

FLCmax is defined as the lower of the Current sensor max and the Contactor rating values.

FLCmin = Current sensor max / 20 (rounded to the nearest 0.01 A.). FLCmin is stored internally in units of 0.01 A.

Note: Do not set the FLC below the FLCmin.

Conversion of Amperes to FLC Settings

FLC values are stored as a percentage of FLCmax

FLC (in %) = FLC (in A) / FLCmax

Note: FLC values must be expressed as a percentage of FLCmax (resolution of 1 %). If you enter an unauthorized value, the LTM R will round it up to the nearest authorized value. For example, on a 0.4-8 A unit, the step between FLCs is 0.08 A. If you try to set an FLC of 0.43 A, the LTM R will round it up to 0.4 A.

Example (No External CTs)

Data:

- FLC (in A) = 9 A
- Current range max = 27.0 A
- Load CT primary = 1
- Load CT secondary = 1
- Passes = 1 or 2
- Contactor rating = 18.0 A

Calculated parameters with 1 pass:

- Load CT ratio = Load CT primary / (Load CT secondary * passes) = $1 / (1 * 1) = 1.0$
- Current sensor max = Current range max * Load CT ratio = $27.0 * 1.0 = 27.0$ A
- FLCmax = min (Current sensor max, Contactor rating) = min (27.0, 18.0) = 18.0 A
- FLCmin = Current sensor max / 20 = $27.0 / 20 = 1.35$ A
- FLC (in %) = FLC (in A) / FLCmax = $9.0 / 18.0 = 50$ %

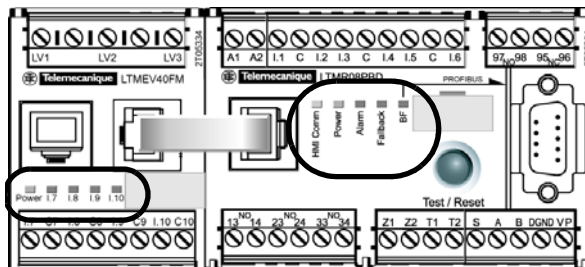
Calculated parameters with 2 passes:

- Load CT ratio = $1 / (1 * 2) = 0.5$
 - Current sensor max = $27.0 * 0.5 = 13.5$ A
 - FLCmax = min (13.5, 18.0) = 13.5 A
 - FLCmin = Current sensor max / 20 = $13.5 / 20 = 0.67$ A
 - FLC (in %) = FLC (in A) / FLCmax = $9.0 / 13.5 = 66$ %
-

Diagnostic

LTM R and LTM E LEDs

As the application example uses the LTM R and LTM E, you must check the LEDs on both components:



LEDs

Use the 5 LEDs on the face of the LTM R controller to monitor its state, as follows:

LTM R LED	Color	Describes	Indicates
HMI Comm	yellow	Communication activity between LTM R controller and expansion module	<ul style="list-style-type: none"> Flashing yellow = communication Off = no communication
Power	green	LTM R controller power or internal fault condition	<ul style="list-style-type: none"> Solid green = power on, no internal faults, and motor off Flashing green = power on, no internal faults, and motor on Off = power off, or internal faults exist.
Alarm	red	Protection fault or warning, or internal fault condition	<ul style="list-style-type: none"> Solid red = internal or protection fault Flashing red (2 x per s) = warning Flashing red (5 x per s) = load shed or rapid cycle condition Off = no faults, warnings, load shed or rapid cycle (when power is On)
Fallback	red	Communication connection between LTM R controller and network module	<ul style="list-style-type: none"> Solid red = in fallback Off = not in fallback (no power)
BF	yellow	Communication activity on the network bus	<ul style="list-style-type: none"> flashing yellow (0.2 s on, 1.0 s off) = network bus communication Off = no network bus communication

Use the 5 LEDs on the face of the LTM E expansion module to monitor its state:

LTM E LED	Color	Describes	Indicates
Power	green or red	Module power or internal fault condition	<ul style="list-style-type: none">● Solid green = power on with no internal faults● Solid red = power on with internal faults● Off = power off
Digital Inputs I.7, I.8, I.9 and I.10	yellow	State of input	<ul style="list-style-type: none">● On = input activated● Off = input not activated

Use with TeSys T LTM CU Control Operator Unit

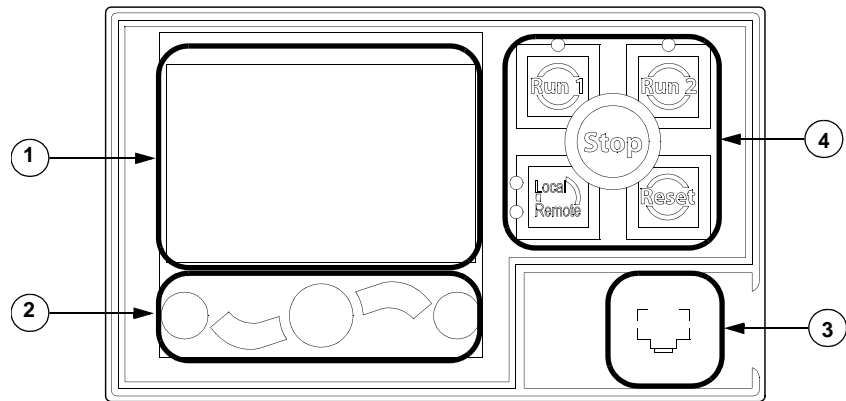
Available Functions

Once connected to the LTM R, the LTM CU can be used to:

- configure parameters for the LTM R controller,
 - display information about the LTM R controller configuration and operation,
 - monitor faults and alarms generated by the controller,
 - control the motor locally using the local control interface.
-

LTM CU Front Face

The LTM CU front face is shown below:



- 1 LCD display
 - 2 Contextual navigation keys
 - 3 Front face RJ45 port for PC connection (covered)
 - 4 Local control interface, including 5 control keys and 4 LEDs
-

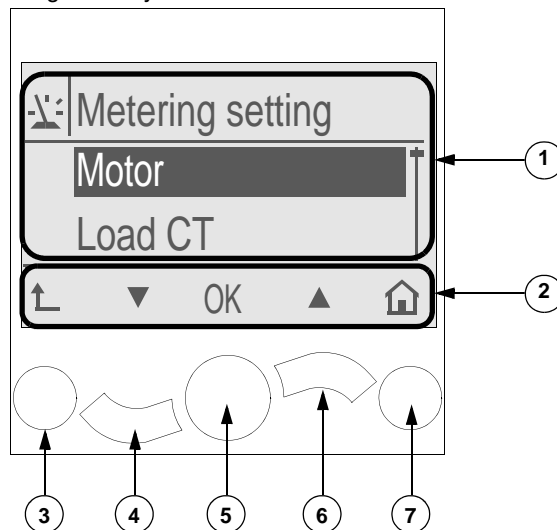
Navigation Keys

The LTM CU navigation keys are contextual, that is, their function depends on the associated icons shown on the LCD display. These icons change for different displays, so the navigation key functions also change.

The navigation keys can be used to:

- navigate menus and sub-menus,
- scroll within a value list,
- select a setting in a value list,
- exit a value list without making a selection,
- return to the main (first-level) menu,
- switch between manual and automatic presentation mode in Quick View display.

The diagram below shows an example of the different functions of each of the navigation keys associated with an icon on the LCD display:



- 1 Information area of the LCD display
- 2 Contextual navigation icons area of the LCD display
- 3 Move up to the next higher-level menu
- 4 Move down to the next item in the menu
- 5 Select an item
- 6 Move up to the previous item in the menu
- 7 Return to the main menu












LCD Displays

The LTM CU presents 3 different LCD displays:

LCD display	Functionality
Menu	<ul style="list-style-type: none"> • Displaying and editing the configuration settings required for configuring the LTM R (metering, protection, control and services settings) • Displaying diagnostic and history data
Quick View	<ul style="list-style-type: none"> • Displaying real-time metering of pre-selected parameters by automatic or manual scrolling
Detected Faults and Warnings	<ul style="list-style-type: none"> • Displaying the most recent detected fault or warning

















Contextual Navigation Icons

The following table describes the icons used with the contextual navigation buttons on the LTM CU:

Icon	Description	Icon	Description
	Enables access to the main menu from a sub-menu or from Quick View		Enables access to Quick View from the main menu or a sub-menu
	Scroll down		Enables access to manual scroll mode (when Quick View is in automatic scroll mode)
	Scroll up		Enables access to automatic scroll mode (when Quick View is in manual scroll mode)
	Validates a setting or value and enables access to a sub-menu when a menu is selected		Used to increment a setting in menu mode
	Move up to the next higher-level menu		Used to decrement a setting in menu mode
	When a menu item is password-protected, this icon enables access to the Enter Password screen		

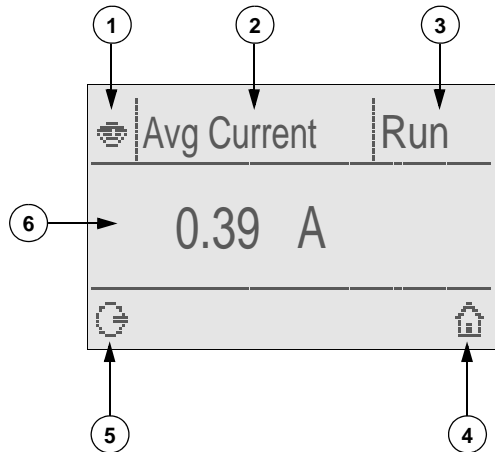
Information Icons

The following table describes the icons provided as information in the information area of the LCD display. They indicate, among others, the selected menu or parameter:

Icon	Description	Icon	Description
	Main menu		Indicates that the present display is Quick View
	Metering setting menu		Indicates that a warning has occurred
	Protection setting menu		Indicates that an error has occurred
	Control setting menu		Information
	Services menu		Check box selected
	Language selection menu		Check box unselected
	Radio button selected		Item has been selected (for inclusion in Quick View display)
	Radio button unselected		LTM R in Configuration mode

Example of an HMI Display

Here is an example of HMI LCD displaying an average current of 0.39 A in local control, run mode:

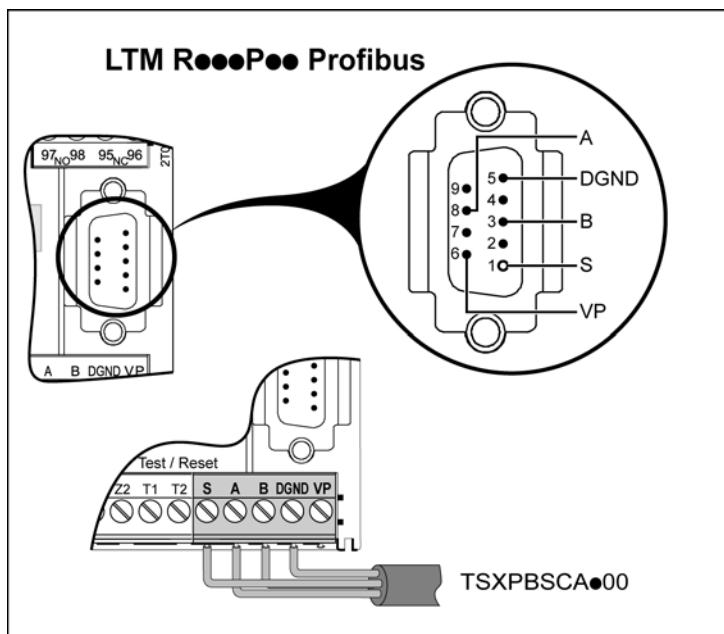


- 1 Quick View display icon
 - 2 Name of the setting currently displayed
 - 3 Motor state
 - 4 Short key to main menu
 - 5 Manual scroll mode icon; pressing the associated contextual navigation key switches to manual scroll mode
 - 6 Value of the setting currently displayed
-

Network Communication on Profibus-DP

Wire the Communication Port

This procedure is shown on the Instruction sheets provided with the LTM R and the LTM E, and described in the Installation chapter of the User's Manual:



Set the Parameters



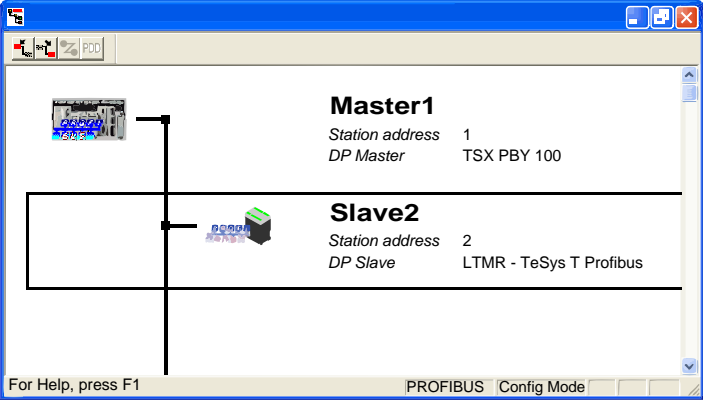
For the application example, set the following parameters:

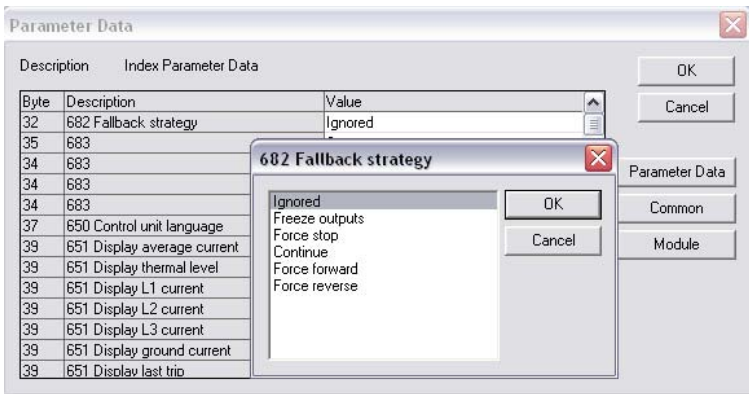
Settings branch	Sub-branch	Parameter	Setting
Device information		Network	Profibus-DP
Communication	Network port	Address	4

Network Port Comm Loss parameter is enabled by default. If this is not suitable, you can disable this parameter.

Configure the Communication

Example of a network configuration:

Step	Action
1	Import your GSD file with File → Copy GSD .
2	Select the path where GS*-files have been unzipped and click OK.
3	Insert a master: - click Insert → Master... , or  - select
4	Select the network speed: - click Settings → Bus Parameter → Baud rate - select the baud rate adapted to the transmission speed of your application (e.g. 3000 kBits/s). The Profibus slaves adapt automatically their baud rate to the master baud rate.
5	In the Insert Master window, select a master (e.g. TSX PBY 100) from the Available masters list. Press the Add>> button and confirm with OK .
6	Insert a slave: - click Insert → Slave... , or  - select
7	In the Insert Slave window, select LTM R - TeSys T Profibus from the Available slaves list. Press the Add>> button and confirm with OK . The following view appears: 

Step	Action																														
8	<p>Select Slave1 and double-click to open the Slave Configuration:</p> <ul style="list-style-type: none">● Set Station address (e.g. to 4).● Change the default Description (e.g. to MMC_4).● Select the correct module from the list: <table border="1"><thead><tr><th>Module</th><th>Inputs</th><th>Outputs</th><th>In/Out</th><th>Identifier</th></tr></thead><tbody><tr><td>MMC R</td><td>10 Byte</td><td>6 Byte</td><td></td><td>0xC4, 0x05,</td></tr><tr><td>MMC R EV40</td><td>10 Byte</td><td>6 Byte</td><td></td><td>0xC4, 0x05,</td></tr><tr><td>MMC L</td><td>10 Byte</td><td>6 Byte</td><td></td><td>0xC4, 0x05,</td></tr><tr><td>MMC L EV40</td><td>10 Byte</td><td>6 Byte</td><td></td><td>0xC4, 0x05,</td></tr><tr><td>MMC R PKW</td><td>10 Byte</td><td>6 Byte</td><td>8 Byte</td><td>0xC4, 0x05, 0x09, 0x31,</td></tr></tbody></table> <p>Note: Go on with steps 9 to 12 if a Remote (R) configuration mode has been selected.</p>	Module	Inputs	Outputs	In/Out	Identifier	MMC R	10 Byte	6 Byte		0xC4, 0x05,	MMC R EV40	10 Byte	6 Byte		0xC4, 0x05,	MMC L	10 Byte	6 Byte		0xC4, 0x05,	MMC L EV40	10 Byte	6 Byte		0xC4, 0x05,	MMC R PKW	10 Byte	6 Byte	8 Byte	0xC4, 0x05, 0x09, 0x31,
Module	Inputs	Outputs	In/Out	Identifier																											
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MMC L EV40	10 Byte	6 Byte		0xC4, 0x05,																											
MMC R PKW	10 Byte	6 Byte	8 Byte	0xC4, 0x05, 0x09, 0x31,																											
9	Click the Parameter Data... button to open the Parameter Data window.																														
10	Click the Module button to open the corresponding Parameter Data window and set the parameter values.																														
11	<p>Double-click one of the available parameters (e.g. the Fallback strategy). An additional selection table opens, allowing you to change the parameter value:</p> 																														
	Click OK .																														
12	Click the OK button of each open dialog window to confirm the selected parameter values.																														

Save and Export the Network Configuration

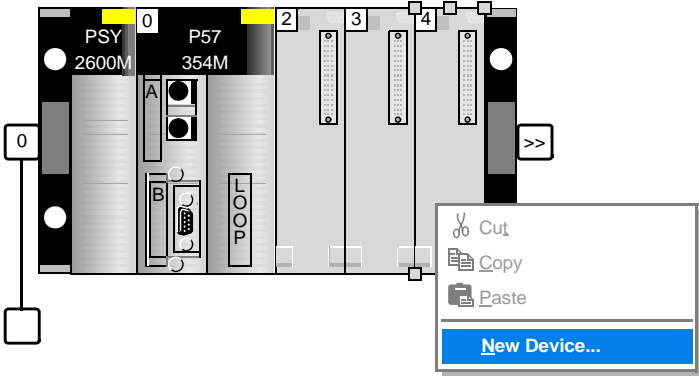
Save and export the configuration before importation into the PLC configuration (PL7, Concept or Unity Pro).

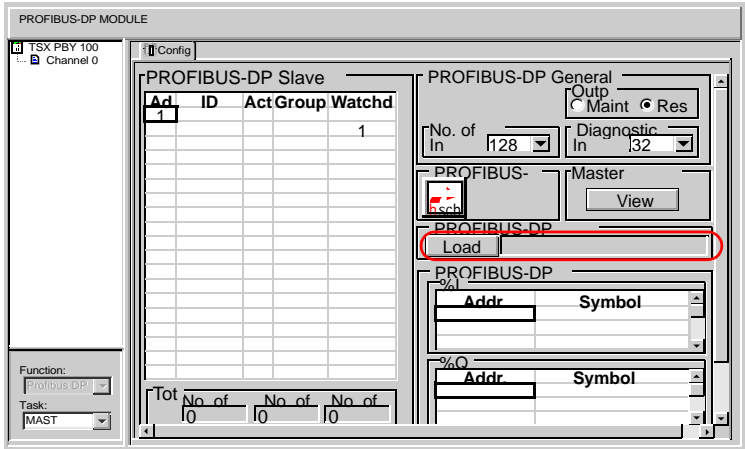
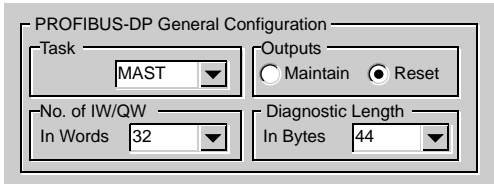
Step	Action
1	Select File → Save As to open the Save as window.
2	Choose the Project path and a File name and click Save (extension .pb).
3	Select File → Export → ASCII to export the configuration as an ASCII file (extension .cnf).
4	Import the Profibus-DP configuration into the PLC configuration (PL7, Concept or Unity Pro).

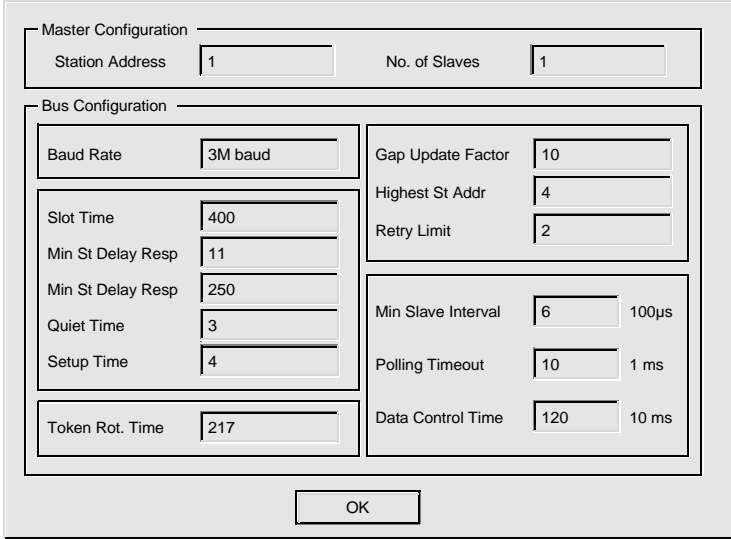
Import the Network Configuration into a PLC via Unity Software

Note: Unity software version must be 2.3 or higher.

Example of a configuration import via Unity software:

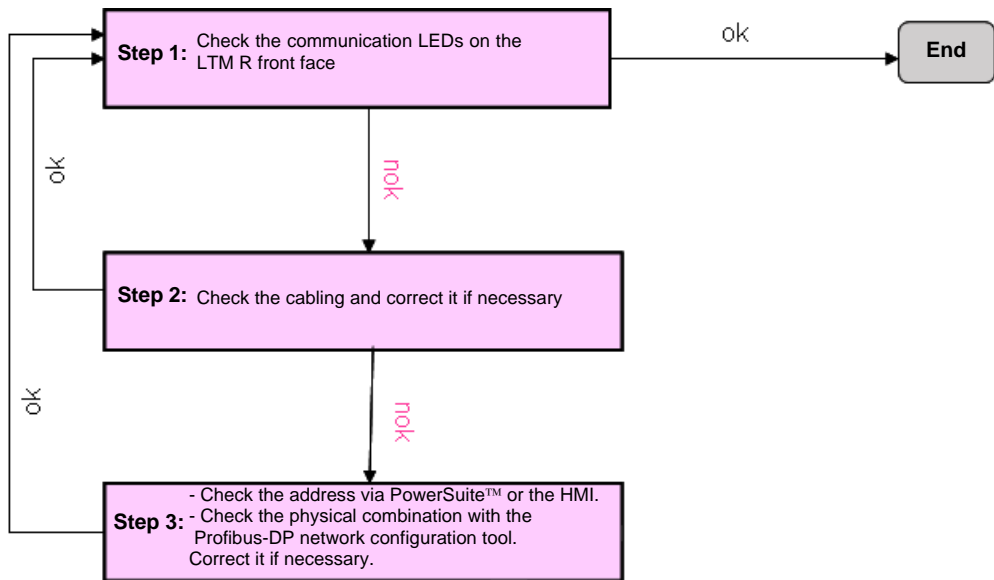
Step	Description
1	<p>Declare the Profibus-DP module in the Unity software:</p> <ul style="list-style-type: none">Right-click on the slot where the module has to be declared and add the module. <div></div> <ul style="list-style-type: none">Select TSXPBY100 in the Communication family and click OK to confirm.

Step	Description
2	<p>Configure the Profibus-DP module in the Unity software:</p> <ul style="list-style-type: none"> • Double-click on the Profibus-DP module to open the communication window. • Click on Load CNF. • Select the ASCII bus configuration file: 
3	<p>Configure the user options:</p> <ul style="list-style-type: none"> • Type of task (Mast or Fast). • Output status when the task is in stop. • Total number of %IW/%QW: 32. • Number of diagnostic bytes: 44 for TeSys®T. 

Step	Description
4	<p>Check the configuration:</p> <ul style="list-style-type: none">Click on the View button to check the parameter of the master. 
5	<p>Transfer the configuration to the PLC and run:</p> <ul style="list-style-type: none">Click OK to close the Check windowClick Validate to confirm the configurationLoad the configuration file in the PLC and run it.
6	<p>Communication test:</p> <ul style="list-style-type: none">Open the debug screen to read and write cycle data.
7	<p>Develop and load the application program, then test it.</p>

Profibus-Communication Test

Basic setup information using configuration, control and monitoring registers applies to all applications:



Cyclic Data Organization

Input data: 10 bytes

Inputs 0 & 1	Status of the controller (MMS profile)	
Inputs 2 & 3	Average current (reg. 466)	
Inputs 4 & 5	Input status (reg. 457 LB)	Input status (reg. 457 HB)
Inputs 6 & 7	Output status (reg. 458 LB)	Output status (reg. 458 HB)
Inputs 8 & 9	Input status (reg. 457 LB)	Input status (reg. 456 HB)

Output data: 6 bytes

Outputs 0 & 1	Command register (MMS profile)	
Outputs 2 & 3	Analog output (reg. 706 LB)	Analog output (reg. 706 HB)
Outputs 4 & 5	Output command (reg. 700 LB)	Output command (reg. 700 HB)

Input Data

Cyclic input data:

Position	Description
Input 0.0 Run Reverse	The main circuit contacts are closed.
Input 0.1 Off	Indication that the device is in the OFF state.
Input 0.2 Run Forward	The main circuit contacts are closed.
Input 0.3 Thermal Overload Warning	An overload warning condition exists. (461.3)
Input 0.4 Lockout Time	Communication status register high byte (456.4)
Input 0.5 Auto Mode	Indication to a remote host controller that the RUN FORWARD, RUN REVERSE and STOP commands will or will not be accepted. 0 = LOCAL CONTROL 1 = AUTO MODE
Input 0.6 System Fault	A fault condition exists. (455.2)
Input 0.7 System Warning	A warning condition exists. (455.3)
Input 1.4 System Ready	Ready (455.0)
Input 1.5 Motor Starting	Motor ramping (455.15)
Input 1.6 Motor Running	Motor running (455.7)
Input 1.7 System tripped	Tripped (455.4)
Input 2/3 Average Current Ratio	IAV average current (%FLA) (466)
Input 4 Boolean Inputs 9-16 of expansion module	Boolean inputs status high byte (457.8-15)
Input 5 Boolean Inputs 1-6 of LTM R controller + inputs 7-8 of expansion module	Boolean inputs status low byte (457.0-7)

Position	Description
Input 6 Reserved	Boolean outputs status high byte (458.8-9) (458.10-15 are not significant)
Input 7 Status of boolean outputs 13, 23, 33, and 95	Boolean outputs status low byte (458.0-3) (458.4-7 are not significant)
Input 8 (456.8) Network port comm loss (456.9) Motor lockout (456.10-15) Reserved	System status register 2 high byte (456.8-15)
Input 9 (456.0) Fault auto reset active (456.1) Reserved (456.2) Fault power cycle requested (456.3) Motor restart time undefined (456.4) Rapid cycle lockout (456.5) Load shedding (456.6) Motor high speed (456.7) HMI port comm loss	System status register 2 low byte (456.0-7)

Output Data

Cyclic output data:

Position	Description
Output 0.0 Run Reverse	Instructs the starter to energize the motor in the reverse direction.
Output 0.1 Off	Instructs the device to go to the OFF state. 0 = ENABLE RUN FORWARD/ RUN REVERSE 1 = OFF
Output 0.2 Run Forward	Instructs the starter to energize the motor in the forward direction.
Output 0.3 Test Fault Command	Control unit command Instructs the device to initiate an internal test routine within the device. (704.5)

Position	Description
Output 0.4 Clear Thermal Capacity Level Command	Reset thermal memory Instructs the starter to override any fault condition and allows starting. (704.5) Note: This command inhibits thermal protection. Continued operation with inhibited thermal protection should be limited to applications where immediate restart is vital. By setting this bit to 1, the thermal state of the motor is lost: the thermal protection will no longer protect an already warm motor.
Output 0.5 Auto Mode	Instructs the starter not to accept the Run reverse, Run Forward and Off commands received from the remote host. 0 = LOCAL CONTROL 1 = AUTO MODE
Output 0.6 Fault Reset Command	Trip reset Instructs the starter to reset all resettable trips (one of the preconditions for READY). (704.3)
Output 1.4 Manufacturer Specific 1	Reserved
Output 1.5 Motor Low Speed Command	Low speed (704.6)
Output 1.6 Manufacturer Specific 3	Reserved
Output 1.7 Manufacturer Specific 4	Reserved
Output 2 Additional Output	Analog output (706.8-15)
Output 3 Additional Output	Analog output (706.0-7)
Output 4 Additional Output	Communication module command register 1 high byte (700.8-15)
Output 5 Additional Output	Communication module command register 1 low byte (700.0-4) (700.0-5-7: Reserved)

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